In the Claims:

Claim 1. (Currently Amended) A method for identifying impurities in a cryogenic liquid, comprising the steps of:

measuring the absorption spectrum of the cryogenic liquid;

measuring the absorption spectrum of at least one impurity alone;

passing a cryogenic liquid sample into a flow cell;

measuring the absorption spectra of said cryogenic liquid sample while said cryogenic liquid sample is within said cell;

comparing said cryogenic liquid sample absorption spectra to said cryogenic liquid and impurity spectra; and

confirming the presence of said sample absorption spectrum associated with said impurity

wherein said steps of said method are carried out such that an on-line analysis of at least one impurity is achieved.

Claim 2. (Original) The method of Claim 1, wherein maximum pressure drop across said flow cell is in the range of 0.5 to 5.0 lb./in.^{2}.

Claim 3. (Original) The method of Claim 2, wherein said maximum pressure drop across said flow cell is in the range of 0.75 to 1.5 lb./in.^{2}.

Claim 4. (Original) The method of Claim 1, wherein said absorption spectra of said cryogenic liquid, impurity and cryogenic liquid sample is measured by passing light in the infrared region through said cryogenic liquid, impurity and cryogenic liquid sample.

Claim 5. (Original) The method of Claim 4, wherein said light to be passed through said cryogenic liquid, impurity and cryogenic liquid sample is scanned in the range of 900 to 2200 nanometers.

Claim 6. (Original) The method of Claim 1, wherein said cryogenic liquid comprises a liquid fluorinated hydrocarbon selected from the group consisting of a hydrofluorocarbon, chlorofluorocarbon, hydrofluoroalkane and derivatives thereof.

Claim 7. (Original) The method of Claim 1, wherein said impurity comprises a material having at least a CO, NH, OH, CH and SH bond.

Claim 8. (Canceled)

Claim 9. (Original) The method of Claim 1, wherein said impurity comprises a volatile organic.

Claim 10. (Currently Amended) A method for identifying impurities in a cryogenic liquid, comprising the steps of:

measuring the absorption spectrum of the cryogenic liquid by passing light in the infrared region through the cryogenic liquid, said cryogenic liquid absorption spectrum ~~having~~ corresponding to a first reference energy;

measuring the absorption spectrum of at least one impurity alone by passing light in the infrared region through said impurity;

passing a cryogenic liquid sample into a flow cell, wherein the maximum pressure drop of said cryogenic liquid sample across said flow cell is in the range of 0.75 to 1.5 lb/in.^{2};

measuring the absorption spectra of said cryogenic liquid sample by passing light in the infrared region through said cryogenic liquid sample while said cryogenic liquid sample is within said cell;

comparing said cryogenic liquid sample absorption spectra to said cryogenic liquid and impurity spectra;

confirming the presence of said cryogenic liquid sample absorption spectrum associated with said impurity, said sample absorption spectrum associated with said impurity ~~having~~ corresponding to a second reference energy; and

determining the concentration (C) of said impurity in said cryogenic liquid sample by the following relationship,

$$kC = \log \frac{\text{second reference } \underline{\text{absorption}} \text{ energy}}{\text{first reference } \underline{\text{absorption}} \text{ energy}}$$

where k is a fixed proportionality constant.

Claim 11. (Original) The method of Claim 10, wherein said flow cell provides substantially continuous flow of said cryogenic liquid sample through said flow cell.

Claim 12. (Original) The method of Claim 10, wherein said maximum pressure drop across said flow cell is approximately 1.0 $lb./in.^2$.

Claim 13. (Original) The method of Claim 10, wherein said light to be passed through said cryogenic liquid, impurity and cryogenic liquid sample is scanned in the range of 900 to 2200 nanometers.

Claim 14. (Original) The method of Claim 10, wherein said cryogenic liquid comprises a liquid fluorinated hydrocarbon selected from the group consisting of a hydrofluorocarbon, chlorofluorocarbon, hydrofluoroalkane and derivatives thereof.

Claim 15. (Original) The method of Claim 10, wherein said impurity comprises a material having at least a CO, NH, OH, CH and SH bond.

Claim 16. (Currently Amended) The method of Claim 10, wherein said impurity comprises a material having a vibration energy in the range of approximately ~~3 x 10e14-12e14Hz~~ 1000 nm to 250 nm.

Claim 17. (Original) The method of Claim 10, wherein said impurity comprises a volatile organic.

Claim 18. (Currently Amended) A method for identifying impurities in a cryogenic liquid at multiple locations within a production environment, comprising:

measuring the absorption spectrum of the cryogenic liquid by passing light in the infrared region through said cryogenic liquid, said cryogenic liquid absorption spectrum ~~having~~ corresponding to a first reference energy;

measuring the absorption spectrum of at least one impurity alone by passing light in the infrared region through said impurity;

passing a cryogenic liquid sample into each of a plurality of flow cells, wherein the maximum pressure drop of said samples across said flow cells is in the range 0.5 to 5.0 lb./in.^{2}, each of said flow cells corresponding to a location within the production environment;

selectively measuring the absorption spectra of said cryogenic liquid samples by passing light in the infrared region through said cryogenic liquid samples while said samples are contained within flow cells;

comparing said cryogenic liquid sample absorption spectra to said cryogenic liquid and impurity spectra;

confirming the presence of said sample absorption spectrum associated with said impurity, said sample absorption spectrum associated with said impurity ~~having~~ corresponding to a second reference energy; and

determining the concentration (C) of said impurity in said cryogenic liquid sample at each of said cell locations by the following relationship,

$$kC = \log \frac{\text{second reference absorption energy}}{\text{first reference absorption energy}}$$

where k is a fixed proportionality constant.

Claim 19. (Original) The method of Claim 18, wherein maximum pressure drop across said flow cells is in the range of 0.75 to 1.5 lb./in.^{2}.

Claim 20. (Original) The method of Claim 18, wherein said maximum pressure drop across said flow cells is approximately 1.0 lb./in.^{2}.

Claim 21. (Original) The method of Claim 18, wherein said light to be passed through said cryogenic liquid, impurity and cryogenic liquid samples is scanned in the range of 900 to 2200 nanometers.

Claim 22. (Original) The method of Claim 18, wherein said cryogenic liquid comprises a liquid fluorinated hydrocarbon selected from the group consisting of a hydrofluorocarbon, chlorofluorocarbon, hydrofluoroalkane and derivatives thereof.

Claim 23. (Original) The method of Claim 18, wherein said impurity comprises a material having at least a CO, NH, OH, CH and SH bond.

Claim 24. (Currently Amended) The method of Claim 18, wherein said impurity comprises a material having a vibration energy in the range of approximately ~~3 x 10e14-12e14Hz~~ 1000 nm to 250 nm.

Claim 25. (Original) The method of Claim 18, wherein said impurity comprises a volatile organic.

Claims 26-29 (Canceled).

Claim 30. (Re-presented – Formerly Claim 8) A method for identifying impurities in a cryogenic liquid, comprising the steps of:

measuring the absorption spectrum of the cryogenic liquid;

measuring the absorption spectrum of at least one impurity alone, wherein said at least one impurity comprises a material having a vibration energy in the range of approximately 1000 nm to 250 nm;

passing a cryogenic liquid sample into a flow cell;

measuring the absorption spectra of said cryogenic liquid sample while said cryogenic liquid sample is within said cell;

comparing said cryogenic liquid sample absorption spectra to said cryogenic liquid and impurity spectra; and